REMARKS

Applicants have carefully reviewed and considered the Examiner's Action mailed August 20, 2003. Reconsideration is respectfully requested in view of the foregoing amendments and the comments set forth below.

By this Amendment, claims 2 and 5 are amended to address typographical errors. Accordingly, claims 1-9 are pending in the instant application.

Claim 2 was objected to because of the informality noted on page 2 of the Action. By the foregoing amendment to claim 2, the typographical error has been corrected. Accordingly, withdrawal of this objection is requested.

Claims 1, 2, 4 and 6-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,273,337 to Detwiler et al. (hereinafter referred to as "Detwiler") in view of U.S. Patent No. 4,983,817 to Dolash et al. ("hereinafter referred to as "Dolash") as explained in paragraph 4 of the Action. In addition, claims 3-5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Detwiler as modified by Dolash in view of U.S. Patent No. 6,193,157 to Dickson et al. (hereinafter referred to as "Dickson") as explained in paragraph 5 of the Action. These rejections are respectfully traversed.

As explained in the Summary of the Invention, a goal of the instant invention is to furnish an optoelectronic device for detecting marks having defined contrast patterns, which is small in structure while allowing the highest possible detection sensitivity. As explained in the specification for the instant application, a comparison to optoelectronic devices working with transmitters that emit light beams in the red and infrared wavelength ranges shows that when using blue or ultraviolet light, a slower expansion of the beam diameter for the transmitting light rays occurs with increasing distance. As a result, the transmitting light beams have a small

diameter even at longer distances to the device to ensure a secure and accurate detection of the mark. Consequently, an optoelectronic device with a small structural size and high detection sensitivity can be achieved with the claimed invention. As set forth in independent claim 1, Applicants' optoelectronic device for detecting marks having defined contrast patterns includes a transmitter for emitting transmitted light beams having a wavelength λ in a range of 350 nm $\leq \lambda \leq$ 450 nm (visible blue/or near-ultraviolet range – paragraph 41 of the instant application), a transmission lens downstream of the transmitter, a receiver for receiving received light beams from generating reception signals corresponding to the received light beams, a receiving lens located upstream of a receiver and having an area A_c of less than or equal to 5 cm^2, means for guiding the transmitted light beams at the marks and for guiding reflected beams from the marks as received light beams to the receiver and an evaluation unit coupled to an output of the receiver for evaluating the reception signals. Thus, Applicants' claimed optoelectronic device has a transmitter for emitting blue light and a small receiving lens (surface area ≤ 5 cm^2) which means that a small polygonal mirror wheel (means for guiding) can be made to achieve an optoelectronic device with a small structural size and detection sensitivity.

Detwiler is directed to a tilted offset barcode scanner. While Detwiler may be used to read barcodes for which the module width is in the range of 0.1 mm to 0.4 mm, contrary to the Action's characterization of Detwiler's collection lens 26, lens 26 is not a "transmission lens" because Detwiler discloses a bypass hole 26b extending completely through the lens so that the outbound optical path passes without deviation or obstruction (see column 3, lines 40-47 of Detwiler). In addition, nowhere does Detwiler disclose, let alone teach or suggest, that collection lens 26 has an area A_c of less than or equal to 5 cm^2 as set forth in independent claim 1. In fact, nowhere does Detwiler address the size of the collection lens, except that it is optically aligned

with the laser in both the outbound and inbound path. Detwiler does not disclose a transmitter for emitting transmitted light beams having a wavelength in a range of 350 nm $\leq \lambda \leq$450 nm and thus, it is respectfully submitted that Detwiler is not concerned with an optoelectronic device of small structural size and high detection sensitivity that can be achieved with the claimed invention. As explained above, it is the combination of a transmitter for emitting blue light and/or near ultraviolet light as the recited wavelength and a receiving optic having a surface area of less than or equal to 5 cm^2 that is the claimed invention.

As a result of this combination, a transmitter wavelength is used and the size of a receiving optic is selected such that speckle noise is minimized and the detection sensitivity of the device according to the invention is optimized. This is explained in paragraphs 12-22 of the instant specification. Nowhere does Detwiler disclose, teach or suggest the problem solved by Applicants' claimed optoelectronic device. The secondary reference to Dolash is directed to a background compensating barcode meter. Dolash discusses a system that uses fluorescent ink in barcodes and illuminates the fluorescent ink in barcodes with ultraviolet light in order to read the same. That is, Dolash describes a device for reading luminescent barcodes. In particular, as described in the Abstract of Dolash, a luminescent and substantially transparent barcode 1 is read by the method and apparatus described by Dolash. Since the reading action is based on the luminescent effect, the function of this device differs from the function of the device taught by Detwiler, which reads barcodes of conventional form including alternating dark bars and white spaces of varying width. Thus, it is unclear why one of ordinary skill in the art would consider using ultraviolet light when Dolash teaches that the same is necessary for reading a luminescent and substantially transparent barcode 1. Accordingly, it is respectfully submitted that the use of visible light in Dolash does not provide any motivation to use visible light for Detwiler, which

reads a barcode having alternating dark bars and white spaces (column 2, lines 34-36 of Detwiler).

Even if one of ordinary skill in the art were to combine the visible light taught by Dolash with the Detwiler device, it is submitted that Applicants' claimed invention would not result. This is because neither Dolash nor Detwiler disclose a transmission lens downstream of the transmitter and a receiving lens upstream of the receiver where the receiving lens has a surface area less than or equal to 5 cm^2. Since neither Dolash nor Detwiler address the size or surface area of the receiving lens, it is submitted that independent claim 1 cannot be rendered obvious by their teachings. As explained above, one essential feature of the invention is the use of blue and ultraviolet light in the range of 350 nm – 450 nm in combination with a receiving optic having a surface area of maximum 5 cm^2. This combination is not taught nor suggested by any combination of Dolash and Detwiler.

Dickson is directed to a frequency division multiplexed barcode scanner. Dickson was applied for its teaching of scanning a barcode over a distance as much as two meters. While Dickson discloses a lens optic 58 within optical receiver 56, nowhere does Dickson disclose, let alone teach or suggest the surface area of such a lens optic. Thus, it is respectfully submitted that Dickson fails to teach or suggest a receiving lens having a surface area of less than or equal to 5 cm^2 as required by independent claim 1. Accordingly, Dickson in any combination with Detwiler and Dolash cannot render the claimed invention obvious.

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 1-9 are patentable over the art of record because none of the prior art of record teaches or suggests the claimed combination of a transmitter for emitting blue light and/or near-ultraviolet light and a receiving lens having a surface area less than or equal 5 cm. Accordingly, Applicants

request the issuance of a Notice of Allowability indicating that claims 1-9 are allowable over the prior art of record.

Should the Examiner believe that a conference would advance the prosecution of this application, the Examiner is requested to telephone the undersigned counsel to arrange such a conference.

Respectfully submitted,

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